

IME 3260 – Operations Planning & Control

Required Course

(Engineering Management Technology and Manufacturing Engineering Technology)

Syllabus – Spring 2006

2003-2005 Catalog Data

Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. Not for engineering credit.

Prerequisite Courses:

STAT 216, 260 or 366

Textbook:

Production & Operations Management by Jay Heizer and Barry Render. Prentice Hall, 2004, 7th Edition.

References:

1. Plossl, G.W. Production and Inventory Control: Principles and Techniques, Second Edition, Englewood Cliffs, NJ, Prentice-Hall, Inc., 1985.
2. Orlicky, Joseph, Material Requirements Planning, New York, NY, McGraw-Hill Book Company, 1975.
3. Plossl, G.W. Production and Inventory Control: Applications, George Plossl Educational Services, Inc., Marietta, GA 30067, 1983.
4. Monks, Joseph G., Operations Management, Theory and Problems, New York, NY, McGraw-Hill, 1987.
5. Schonberger, Richard J., World Class Manufacturing, New York, NY, Free Press, 1986.
6. Stevenson, W.J., Production/Operation Management 3rd Edition, Irwin, 1990.

Course Instructor:

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Course Learning Objectives:

1. Able to understand the overall decision making process associated with the field of operations management. (a,b,g,j,k)
2. Able to forecast demand using time series and causal models (a,b,d,f,g,k)
3. Able to apply decision making techniques and to understand the strategic implications of decision regarding product, process and site location. (a,b,f,g,h,i,j,k)
4. Able to understand the difference between supply chain management and traditional purchasing. (a,b,f,g,h,i,j,k)
5. Able to apply aggregate planning and master production scheduling techniques to plan production (a,b,d,g,k)
6. Able to apply basic inventory control, material requirements planning and scheduling models in an operations environment. (a,b,d,g,k)
7. Able to analyze data presented in a case study and to interpret and present the information in written form. (g,h,i,j,k)

Performance Criteria: (Learning Outcomes)

Objective 1:

- Explain the steps in the decision making process including the importance of problem identification and establishing practical alternatives.
- Recognize the need for sensitivity analysis of mathematical models and the use of physical and schematic model for operations decision making.

Objective 2:

- Solve demand forecasting problems using manual and computerized software.

Objective 3:

- Evaluate product, process and site location strategies using the break-even cost volume analysis, weighted methods and the center of gravity methods.

Objective 4:

- Explain the operations management functions included in supply chain management which were not part of the traditional purchasing function.

Objective 5:

- Develop aggregate plans and master production schedules considering common operational constraints on the process.

Objective 6:

- Develop independent inventory models for various business environments
- Identify material and capacity requirements using material and capacity requirements planning.
- Schedule production using dispatching rules in a shop floor control environment.

Objective 7:

- Complete a written assignment on the analysis of a make or buy or inventory control analysis.

Professional Components:

This course addresses ABET criterion 2 (TAC) requirements for professional component as follows:

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|--|-----|
| a) College-level math, basic science | 10% |
| b) Engineering topics (engineering design) | 70% |
| c) General education (communication, teamwork, professional development, ethics) | 20% |

Relationship to Program Educational Outcomes:

This course provides significant support for the following IME program outcomes:

- (2) a,c,d,e,f
- (3) a,b
- (4) b

• Topics:

Session	Topic	Chapter
1	Developing a production operation strategy	1&2
2	Holiday	--
3	Decision making	--
4	Forecasting demand requirements	4
5	Forecasting & Design of Goods and Services	4&5
6	Process Strategy	7
7	Location Strategy	8
8	Spring Break	
9	Supply chain management	11
10	Mid – Term	1-11
11	Aggregate Planning	13
12	Inventory Control & Just-in-Time (JIT) Tactics	12
13	Materials Requirements and Capacity Requirements Planning	14
14	Short Term Scheduling	15

15	Course Wrap-up and Review	1-15
16	Final Exam - Comprehensive	1-15

- **Evaluation:**

1	Midterm	100 points
2	Final Exam	150 points
3	Homework/Quizzes	170 points
4	Case Study	75 points
5	Personal Evaluation	5 points
	Total	500 points

- **Other Information:**

For purposes of assigning grades, the following scale will be used:

<i>Grade</i>	<i>Range</i>
A	92-100
A/B	88-91
B	82-87
B/C	78-81
C	72-77
C/D	68-71
D	60-67
F	BELOW 60

- **Computer Usage:**

Word processing and electronic spreadsheet skills are required. Use of disk provided with text book is recommended for forecasting models and is required for materials requirements planning.

- **Written Communication Requirements:**

Provide a complete written analysis including conclusions and recommendation for a assigned production operations management case. (Student has the option of choosing 1 of 2 cases to match their interest). Charts, graphs, and spreadsheets should be used as required. All calculations must be included. No handwritten submissions are accepted.

Other Requirements:

- 1 Attendance and punctuality is expected. This class will be conducted on an interactive basis, i.e., during our discussion of concepts and techniques, your participation is expected.
- 2 Quiz and exam makeups are prohibited. Quizzes will be unannounced and may consist of a problem, short answer, or essay and discussion questions. Tests and exams will be closed book; however, one 8 ½ X 11 page of handwritten notes (no machine copies) will be allowed. Homework is due on the date assigned. Late homework grades will be reduced 10% per day.
Student is required to pass at least one exam to pass this course.

Prepared by Joseph W. Petro

Date: December 2005